# California Regional Water Quality Control Board
## Central Valley Region
**Robert Schneider, Chair**

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**Arnold Schwarzenegger**
*Governor*


**TO:** Dr. Gerald Bowes
State Water Resources Control Board
Division of Water Quality

**FROM:** Kenneth D. Landau
Assistant Executive Officer

**DATE:** 18 November 2005

**SIGNATURE:** *original signed by Ken Landau*

**SUBJECT:** PEER REVIEW OF PROPOSED BASIN PLAN AMENDMENT FOR THE CONTROL OF DIAZINON AND CHLORPYRIFOS DISCHARGES INTO THE SACRAMENTO - SAN JOAQUIN DELTA

Central Valley Regional Board staff is preparing a Basin Plan Amendment for the control of diazinon and chlorpyrifos discharges into the Sacramento-San Joaquin Delta. A draft Basin Plan Amendment and staff report should be available for peer review by approximately 2 January 2006. Attached is a summary of the proposed action, a description of the scientific issues to be reviewed in the proposed Basin Plan Amendment, and disclosure of external personnel involved in guiding the development of the documents to be peer reviewed. We anticipate taking this item to the Regional Board for formal consideration at the June 2006 Board Meeting.

I request you initiate at this time the selection of peer reviewers for this project. The peer reviewers should have experience with Total Maximum Daily Load technical issues; pollutant fate and transport in an aqueous environment; and criteria development for aquatic life. I further request that the review be completed within 30 days after the proposed Amendment and supporting documents are sent to the peer reviewers. Please contact Danny Mcclure at (916) 464-4751 (dmcclure@waterboards.ca.gov) or Joe Karkoski at (916) 464-4668 (jkarkoski@waterboards.ca.gov) if you have any questions or require additional information.

Attachments: (1) Summary of Proposed Action
(2) Scientific Issues to be Peer Reviewed
(3) Disclosure and Documents for Review

cc: Joe Karkoski, CVRWQCB
Danny McClure, CVRWQCB

**Summary of Proposed Action**

The Regional Board has determined that its narrative water quality objectives are not being attained in the Sacramento-San Joaquin Delta Waterways (Delta Waterways) due to elevated levels of diazinon and chlorpyrifos, which exhibit additive toxicty. Based on this determination, the Regional Board and State Water Resources Control Board have placed the Delta Waterways on the Clean Water Act Section 303(d) list. Identification of a water body and pollutant on the 303(d) list triggers the obligation to develop a Total Maximum Daily Load (TMDL) for that water body and pollutant. The Regional Board plans to establish numeric water quality objectives for chlorpyrifos and diazinon (both chronic and acute) and address the joint toxicity of diazinon and chlorpyrifos.

The Porter-Cologne Water Quality Control Act (the State water quality law) requires that six factors be considered in the development of water quality objectives: 1) the past, present, and probable future beneficial uses of the water; 2) the environmental characteristics of the hydrographic unit; 3) water quality conditions that could be reasonably achieved; 4) economic considerations; 5) the need for developing housing; and 6) the need to develop and use recycled water. Adoption of water quality objectives requires the adoption of a program of implementation for achieving those objectives. The program of implementation must include a description of the nature of the actions to be taken to achieve the objectives; a time schedule for the actions to be taken; and a surveillance and monitoring program to determine compliance.

The objectives, loading capacity, and allocations proposed for the Delta are based on the previously peer-reviewed approach used for the San Joaquin River (Beaulaurier et al., 2005).

The proposed Basin Plan Amendment would address elevated diazinon and chlorpyrifos concentrations that have been observed in the Delta Waterways during the winter storm season and during the irrigation season. The TMDL loading capacity and allocations are established so that the additive effects of diazinon and chlorpyrifos should not cause toxicity. A review of the literature indicates that alternative pest control practices and runoff control practices are available to reduce diazinon and chlorpyrifos loading and that the water quality objectives in the Delta Waterways could be reasonably achieved. If adopted, the proposed Basin Plan amendments would result in:

1) establishment of numeric water quality objectives for diazinon and chlorpyrifos in the Delta Waterways;
2) establishment of a diazinon and chlorpyrifos Total Maximum Daily Loads (TMDLs) and associated allocations;
3) establishment of a program of implementation for diazinon and chlorpyrifos designed to meet the TMDLs and applicable water quality objectives; and
4) establishment of a surveillance and monitoring program to evaluate compliance with the water quality objectives and TMDL load allocations.

**Scientific Issues for Peer Review**

The statutory mandate for external scientific peer review (Health and Safety Code Section 57004) states that the reviewer's responsibility is to determine whether the scientific portion of the proposed rule is based upon sound scientific knowledge, methods, and practices.

We request that you make this determination for each of the following issues that constitute the scientific basis of the proposed regulatory action. An explanatory statement is provided for each issue to focus the review.

**1. Use of the freshwater water quality criteria as the basis for site-specific water quality objectives.**

The recommended diazinon and chlorpyrifos water quality objectives for the Delta are based on freshwater water quality criteria derived using the United States Environmental Protection Agency's (USEPA) guidance on the derivation of criteria for the protection of aquatic life (USEPA, 1985). Based on consideration of the available water quality criteria for diazinon and chlorpyrifos, the range of salinities in the Delta, and the data and information available about diazinon and chlorpyrifos in the Delta, freshwater criteria were deemed to be appropriate for the Delta.

**2. Application of the loading capacity and allocation methodology to a tidal delta**

The approach previously utilized for setting the load allocations and loading capacity for diazinon and chlorpyrifos in the San Joaquin River (Beaulaurier et al., 2005) is also proposed for the Delta. The Delta is influenced by tides, whereas, the portion of the San Joaquin River addressed previously is not.

**3. Goals for monitoring to assess compliance with the TMDL and water quality objectives in the Delta Waterways.**

The Basin Plan Amendment includes language defining goals for monitoring to provide data and information to determine whether the water quality objectives and load allocations are being met. Alternative approaches would include making more or less specific recommendations on the amount, type, and timing of monitoring needed.

**4. Overarching questions**

Reviewers are not limited to addressing only the specific issues presented above, and are asked to contemplate the following "big picture" questions.

(a) Are there any additional scientific issues that are part of the scientific basis of the proposed rule that are not described above? If so, please comment with respect to the statutory language given above (i.e. Health and Safety Code Section 57004).

(b) Taken as a whole, is the scientific portion of the proposed rule based upon sound scientific knowledge, methods, and practices?

**Disclosure of External Personnel Involved in Guiding the Development of the Documents to be Peer Reviewed**

No personnel external to the Regional Board were involved in the development or in guiding the development of the documents to be peer reviewed.

The following peer reviewers have reviewed related, previously adopted Basin Plan Amendments:

Reviewers for the "Amendments for the Control of Orchard Pesticide Runoff and Diazinon Runoff into the Sacramento and Feather Rivers" - David L. Sedlak, Dave Sunding and William E. Kastenberg.

Reviewer for the "Amendments for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River" - Allan Felsot.

**Primary Document to be Reviewed**

Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta Waterways; Peer Review Draft Staff Report

**Additional Materials to be Provided**

- U.S. EPA, 1985. Guidelines for deriving numerical national water quality criteria for the protection of aquatic organisms and their uses.

- Beaulaurier, et al., 2005. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River. Final Central Valley Regional Water Quality Control Board Staff Report.

- Responses to public and peer review comments on the proposed amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the control of diazinon and chlorpyrifos runoff into the Lower San Joaquin River.

- Karkoski et al., 2003. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Orchard Pesticide Runoff and Diazinon Runoff into the Sacramento and Feather Rivers. Final Central Valley Regional Water Quality Control Board Staff Report.